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Amendment dated December 1, 2008

Docket No.: 61843USN(51035)

### REMARKS

Claims 1-5 and 11-14 are pending in the instant application. Claims 6-10 stand canceled. Claims 13 and 14 are canceled without prejudice. Claim 1 has been amended to correct typographical errors and to more clearly delineate the claimed subject matter. No new matter is introduced.

Amendment of any claim herein is not to be construed as acquiescence to any of the rejections/objections set forth in the instant Office Action, and was done to expedite prosecution of the application. Applicants make these amendments without prejudice to pursuing the original subject matter of this application in a later filed application claiming benefit of the instant application, including without prejudice to any determination of equivalents of the claimed subject matter.

#### Claim Objections

Claim 1 is objected to, allegedly due to various typographical errors. Claim 1 has been amended to correct the typographical errors. The objection is overcome and withdrawal of the objection is respectfully requested.

#### Rejection under 35 U.S.C. 112, second paragraph

Claims 1-5, 11 and 12 are rejected as allegedly uncertain regarding the metes and bounds of the claims. It is alleged that it is not clear whether the claims require each of the microorganisms or any combination of the microorganisms to be inhibited. Applicants traverse but have amended claim 1 to indicate that any one or more of the microorganisms can be inhibited. Support for the amendment can be found at least in Examples 6-9, which demonstrate that certain microorganisms are reduced by treatment with different amounts of a hop acid composition, or different hop acid compositions compared to a control. The rejection is overcome and withdrawal of the rejection is respectfully requested.

#### Rejection under 35 U.S.C. 102(b)

Claims 1, 2, 4, 5, and 11-14 are rejected as being anticipated by Papadopoulou et al. (Journal of the Institute of Brewing, 2000, 106(3), pp 179-188). It is alleged that Papadopoulou

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teaches a composition comprising barley and a hop beta acid, wherein the hop beta acid was used at the level of 1 ppm to 10 ppm of the barley. It is then alleged that a method wherein "...hop acid mixed with the feed..." is inherently disclosed by Papadopoulos.

Applicants disagree and respectfully traverse. Nevertheless, claims 13 and 14 have been canceled. Claim 1 has been amended to recite a method of preparing an organic food supplement useful to inhibit *Ruminococcus albus*, *R. flavefaciens*, *Butyrivibrio fibriosolvens*, or *Methanobacterium ruminatum*.

Claim 1 as amended and dependent claims 2, 4, 5, 11 and 12 are directed towards a method of preparing an organic food supplement using *Humulus lupulus* (hop) acids for livestock to inhibit *Ruminococcus albus*, *R. flavefaciens*, *Butyrivibrio fibriosolvens*, or *Methanobacterium ruminatum*, commonly found in digestive systems of livestock.

Papadopoulos relates to malt preparation, and more particularly relates to malt for use in brewing processes, and discusses the control of selected microorganisms during the malting process. The Papadopoulos reference teaches the addition of 1 ppm of  $\alpha$ -acid during steeping or at cast eliminated *Chromobacterium*, *Clavibacterium*, and fungi. Hop  $\beta$ - acid was used at concentrations of 1 ppm and 10 ppm of barley prior to kilning. Use of 1 ppm prior to kilning reduced fungal levels to zero but did not affect other microorganisms.

Papadopoulos provides no teaching of the preparation of a food supplement that is used to control the bacteria recited in the amended claims, i.e., *Ruminococcus albus*, *R. flavefaciens*, *Butyrivibrio fibriosolvens*, or *Methanobacterium ruminatum*, which are found in livestock. The process described in Papadopoulos relates to the inhibition of certain bacteria typically found during the malting and/or brewing process, and does not teach a method to make a food supplement used to control bacteria found in livestock, including *Ruminococcus albus*, *R. flavefaciens*, *Butyrivibrio fibriosolvens*, or *Methanobacterium ruminatum*, as specifically recited in Applicants' claims. Applicants submit that Papadopoulos does not teach each and every element of the claimed subject matter as amended, and respectfully request the rejection be withdrawn.

Claims 1, 2, 5, and 11-14 are rejected as anticipated by Arnould et al (Revue de l'Agriculture, 1983, pp 94-105). It is alleged that Arnould provides a method of making an

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organic food supplement for livestock comprising mixing an effective amount of isohumulone and feed plant, such as alfalfa and barley.

Applicants disagree and respectfully traverse. Nevertheless, claims 13 and 14 have been canceled. Claim 1 has been amended to recite a method of preparing an organic food supplement useful to inhibit *Ruminococcus albus*, *R. flavefaciens*, *Butyrivibrio fibriosolvens*, or *Methanobacterium ruminatum*.

Claim 1 as amended and dependent claims 2, 4, 5, 11 and 12 are directed towards a method of preparing an organic food supplement using *Humulus lupulus* (hop) acids for livestock to inhibit *Ruminococcus albus*, *R. flavefaciens*, *Butyrivibrio fibriosolvens*, or *Methanobacterium ruminatum*, commonly found in digestive systems of livestock.

Arnould is directed towards the formation of a food supplement comprising both hop acid and malt dregs for an animal feed. Arnould teaches that certain animal feeds comprising a combination of hop acids and malt dregs do not significantly affect the quantity or taste of milk produced from cows that are fed the preparation. The purpose of the addition of the food supplement was to determine whether milk production and/or taste would be affected by the addition of the hop acid/malt dregs food supplement.

Arnould provides no teaching of the preparation of a food supplement that is used to control the bacteria recited in the amended claims, i.e., *Ruminococcus albus*, *R. flavefaciens*, *Butyrivibrio fibriosolvens*, or *Methanobacterium ruminatum*, which are found in livestock. The process described in Arnould relates to the production of milk, and does not teach a method to make a food supplement used to control bacteria found in livestock, including *Ruminococcus albus*, *R. flavefaciens*, *Butyrivibrio fibriosolvens*, or *Methanobacterium ruminatum*, as specifically recited in Applicants' claims. Applicants submit that Arnould does not teach each and every element of the claimed subject matter as amended, and respectfully request the rejection be withdrawn.

Rejection under 35 U.S.C. 103(a)

Claims 1-5 and 12-14 are rejected as anticipated or in the alternative, as obvious over Thompson et al (F; US 3,821,416), in view of Schmalreck et al (X; Can J. Microbio, 1975, 205-

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212), Lewis et al. (W; J. Clin Invest, 1949, 916-919), Chin et al. (U1; Proceedings Society Experimental Biology and Medicine, 1949, 158-160), Haas et al. (AC, U.S. Patent No. 6,432,317 B1), Barney et al. (G; US 5,455,038), Nutter et al. (I, US 5,827,895), Nutter et al. (J, US 6,313,178 B1) and Johnson et al. (H; US 2001/14365), and further in view of Mannering et al. (X), Miller et al (BG, GB 2073657), and Windisch et al (X1).

Applicants disagree and respectfully traverse. Nevertheless, claims 13 and 14 have been canceled. Claim 1 has been amended to recite a method of preparing an organic food supplement useful to inhibit *Ruminococcus albus*, *R. flavefaciens*, *Butyrivibrio fibriosolvens*, or *Methanobacterium ruminatum*.

Claim 1 as amended and dependent claims 2, 4, 5, 11 and 12 are directed towards a method of preparing an organic food supplement using *Humulus lupulus* (hop) acids for livestock to inhibit *Ruminococcus albus*, *R. flavefaciens*, *Butyrivibrio fibriosolvens*, or *Methanobacterium ruminatum*, commonly found in digestive systems of livestock.

As Applicants understand, Thompson teaches an animal feed comprising dried brewers grain. The dried brewers grain includes dry solids, fat, fiber, ash, protein, calcium, phosphorus, and potassium (Thompson, Table I). Additionally, Thompson states that dried brewers grains are the extracted residue of barley malt alone or in mixture with other cereal grain.

Thompson provides no teaching of the preparation of a food supplement that is used to control the bacteria recited in the amended claims, i.e., *Ruminococcus albus*, *R. flavefaciens*, *Butyrivibrio fibriosolvens*, or *Methanobacterium ruminatum*, which are found in livestock. In contrast, Thompson clearly states that "It is not known at this time why dried brewers grains effectively decreases and prevents the development of the typical liver abscesses in finishing cattle fed high concentrate ratios" (Thompson column 3, lines 26-28). Applicants submit that Thompson was not aware of all the components of the dried brewers grain, especially in the "dry solids" component, and thus could not provide an accurate indication of what component of the dried brewers grain provided any antibacterial activity. Moreover, Thompson could not determine the level, if any, of hops acids that would be beneficial for inhibiting the bacteria specifically recited in Applicants' claims.

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The teachings of Schmalreck (Table 2, page 209), Lewis (Table 1, page 918), Chin, Haas, Barney, Nutter '895, Nutter '178, and Johnson are solely directed towards the teaching that hop acids can be used to control bacteria. However, none of the above references teaches or suggests controlling *Ruminococcus albus*, *R. flavefaciens*, *Butyrivibrio fibriosolvens*, or *Methanobacterium ruminatum*, as recited in Applicants' claims as amended.

None of the recited documents provides any teaching or suggestion of a method to make a food supplement used to control bacteria found in livestock, including *Ruminococcus albus*, *R. flavefaciens*, *Butyrivibrio fibriosolvens*, or *Methanobacterium ruminatum*, as recited in Applicants' claims. Specifically, none of the nine references, when read together in view of Thompson, provide any teaching, suggestion, motivation, or reasonable expectation of success to prepare an organic food supplement that uses hop acids to inhibit the recited bacteria found in livestock.

Applicants thus contend that Thompson, whether alone or in combination with Schmalreck et al (X; Can J. Microbio, 1975, 205-212), Lewis et al. (W; J. Clin Invest, 1949, 916-919), Chin et al. (U1; Proceedings Society Experimental Biology and Medicine, 1949, 158-160), Haas et al. (AC, U.S. Patent No. 6,432,317 B1), Barney et al. (G; US 5,455,038), Nutter et al. (I, US 5,827,895), and Nutter et al. (J, US 6,313,178 B1) and Johnson et al. (H; US 2001/14365), and further in view of Manmering et al. (X), Miller et al (BG, GB 2073657), and Windisch et al (X1), does not teach or suggest Applicants' claimed invention. Applicants respectfully request the rejection be withdrawn.

Claims 1-5, and 11-14 are are rejected as obvious over Arnould et al. (Revue de l'Agriculture, 1983, pp 94-105), in view of Windisch et al. (Wochenschrift fuer Brauerei, 1924, 175-220) and Walker et al. (J. Inst Brewing, 1937, 17-30). It is alleged that Arnould teaches the Applicants' claimed invention except for a disclosure of the hop acids. It is further alleged that Windisch teaches a hop extract, Walter teaches a bacteriostatic action of hop acids against lactobacilli, and that the one of ordinary skill in the art would combine the teachings of Arnould, Windisch and Walker to arrive at the instantly claimed invention.

Applicants disagree and respectfully traverse. Nevertheless, claims 13 and 14 have been canceled. Claim 1 has been amended to recite a method of preparing an organic food

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supplement useful to inhibit *Ruminococcus albus*, *R. flavefaciens*, *Butyrivibrio fibriosolvens*, or *Methanobacterium ruminatum*.

Claim 1 as amended and dependent claims 2, 4, 5, 11 and 12 are directed towards a method of preparing an organic food supplement using *Humulus lupulus* (hop) acids for livestock to inhibit *Ruminococcus albus*, *R. flavefaciens*, *Butyrivibrio fibriosolvens*, or *Methanobacterium ruminatum*, commonly found in digestive systems of livestock.

Arnould is directed towards the formation of a food supplement comprising both hop acid and malt dregs for an animal feed. Arnould teaches that certain animal feeds comprising a combination of hop acids and malt dregs do not significantly affect the quantity or taste of milk produced from cows that are fed the preparation. The purpose of the addition of the food supplement was to determine whether milk production and/or taste would be affected by the addition of the hop acid/malt dregs food supplement.

Arnould provides no teaching of the preparation of a food supplement that is used to control the bacteria recited in the amended claims, i.e., *Ruminococcus albus*, *R. flavefaciens*, *Butyrivibrio fibriosolvens*, or *Methanobacterium ruminatum*, which are found in livestock. The process described in Arnould relates to the inhibition of certain bacteria typically found during the malting and/or brewing process, and does not teach a method or suggest to make a food supplement used to control bacteria found in livestock, including *Ruminococcus albus*, *R. flavefaciens*, *Butyrivibrio fibriosolvens*, or *Methanobacterium ruminatum*, as recited in Applicants' claims.

The process described in Arnould relates to the effect of hop acids and malt dregs on milk production, and does not teach a method to make a food supplement used to control *Ruminococcus albus*, *R. flavefaciens*, *Butyrivibrio fibriosolvens*, or *Methanobacterium ruminatum*, which are found in livestock. Specifically, neither Windisch or Walter in combination with Arnould provide any teaching, suggestion, motivation, or reasonable expectation of success to arrive at a method of preparing an organic food supplement comprising a hop acid which is used to inhibit the four specifically claimed bacteria found in the digestive system of livestock, as provided in Applicants' claims.

The rejection is obviated and withdrawal of the rejection is respectfully requested.

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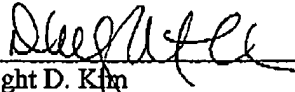
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In view of the above amendment, Applicants believe the pending application is in condition for allowance. Should any of the claims not be found to be allowable, the Examiner is requested to telephone Applicants' representative at the number below. Applicants thank the Examiner in advance for this courtesy.

The Director is hereby authorized to charge or credit any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 04-1105, under Order No. 51035-61843 USN.

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Respectfully submitted,

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